

## WHAT IS CLAIMED IS:

1. A method for assembling a gas turbine engine, said method comprising:

mounting a core engine to a vehicle;

coupling a fuselage radially outward and around the core engine;

coupling an exhaust nozzle to the core engine to channel exhaust gases discharged from the core engine; and

coupling an infrared suppression system in flow communication with the engine exhaust nozzle for channeling exhaust gases discharged from said exhaust nozzle to facilitate suppressing an exhaust infrared signature of the core engine during operation, and wherein the infrared suppression system includes an access door and a flow channel that is coupled to the access door such that the flow channel is movable with the access door from a closed position to an open position.

2. A method in accordance with Claim 1 wherein coupling an infrared suppression system in flow communication with the engine exhaust nozzle further comprises coupling an inlet aperture of the engine exhaust nozzle to a discharge end of the core engine such that a discharge aperture of the engine exhaust nozzle is aligned substantially perpendicular to a direction of exhaust gases flowing through the exhaust nozzle.

3. A method in accordance with Claim 2 further comprising coupling a cowl to the access door such that said cowl is movable with the access door between the closed and open positions, and wherein the cowl includes an internal surface, an external surface, and at least one opening extending therebetween that is coupled in flow communication with the nozzle discharge aperture.

4. A method in accordance with Claim 3 wherein coupling a cowl to the access door further comprises coupling the cowl to the access door such that at least one cooling passage is defined between the flow channel and the cowl.

5. A method in accordance with Claim 3 wherein coupling an infrared suppression system in flow communication with the engine exhaust nozzle further comprises forming at least one opening extending between an inner and outer surface of the cowl such that during operation, ambient air is channeled through the at least one cowl opening to facilitate reducing an operating temperature of said flow channel.

6. An exhaust assembly for a gas turbine engine including a turbine rear frame, said exhaust assembly comprising:

an engine exhaust nozzle extending downstream from the turbine rear frame; and

an infrared suppression system coupled in flow communication with said engine exhaust nozzle for channeling exhaust gases discharged from said exhaust nozzle, said suppression system comprising a flow channel coupled to an access door, such that said flow channel is movable with said access door from a closed position to an open position wherein said access door forms a work platform, said suppression system facilitates suppressing an exhaust infrared signature of the gas turbine engine.

7. An exhaust assembly in accordance with Claim 6 wherein said engine exhaust nozzle comprises an inlet aperture and a discharge aperture, said discharge aperture is substantially perpendicular with respect to a direction of exhaust gases flowing therethrough.

8. An exhaust assembly in accordance with Claim 7 further comprising a cowl coupled to said access door such that said cowl is movable with said access door between said access door closed and open positions, said cowl comprises an internal surface, an external surface, and at least one opening extending therebetween, said at least one opening coupled in flow communication with said nozzle discharge aperture.

9. An exhaust assembly in accordance with Claim 8 wherein at least a portion of said cowl internal surface is spaced radially from said flow channel such that at least one cooling passage is defined between said flow channel and said cowl,

said at least one cooling passage is coupled in flow communication with said cowl at least one opening.

10. An exhaust assembly in accordance with Claim 7 wherein said engine exhaust nozzle discharge aperture is configured to inducing mixing of exhaust gases and ambient air to facilitate reducing an operating temperature of exhaust gases flowing through said exhaust assembly.

11. An exhaust assembly in accordance with Claim 7 wherein said flow channel comprises an inner surface, an outer surface, and a plurality of openings extending therebetween, said openings for channeling ambient cooling air therein to facilitate reducing an operating temperature of said flow channel.

12. An exhaust assembly in accordance with Claim 7 wherein the gas turbine engine has a centerline extending therethrough, said flow channel comprises an elbow for channeling exhaust gases discharged from said flow channel outward with respect to the engine centerline axis.

13. An exhaust assembly in accordance with Claim 7 wherein at least a portion of said flow channel facilitates preventing infrared reflections.

14. A gas turbine engine configured to couple to a fuselage, said gas turbine engine comprising:

a core engine; and

an exhaust assembly extending downstream from said core engine for discharging exhaust gases from said core engine, said exhaust assembly comprising an exhaust nozzle coupled to said core engine and an infrared suppression system coupled in flow communication downstream from said engine exhaust nozzle for channeling exhaust gases discharged from said exhaust nozzle, said infrared suppression system comprising a flow channel and an access door, said flow channel coupled to said access door, such that said flow channel is movable with said access door from a closed position to an open position.

15. A gas turbine engine in accordance with Claim 14 wherein said core engine is mounted radially inward from the fuselage, said engine exhaust nozzle extends through the fuselage, and said flow channel is mounted to an external surface of the fuselage, such that exhaust gases discharged from said flow channel are discharged in a direction away from the fuselage.

16. A gas turbine engine in accordance with Claim 15 wherein said engine exhaust nozzle comprises an inlet aperture and a discharge aperture, said discharge aperture is substantially perpendicular to a direction of exhaust gases flowing therethrough, and wherein , wherein said access door forms a work platform configured to support a user thereon when rotated to the open position.

17. A gas turbine engine in accordance with Claim 16 further comprising a cowl coupled to said access door such that said cowl is movable with said access door between said closed and open positions, said cowl comprises an internal surface, an external surface, and at least one opening extending therebetween, said at least one opening coupled in flow communication with said exhaust nozzle discharge aperture.

18. A gas turbine engine in accordance with Claim 16 further comprising a cowl coupled to said access door such that said cowl is movable with said access door between said closed and open positions, said cowl comprises an internal surface, an external surface, and at least one opening extending therebetween, at least a portion of said cowl internal surface is spaced radially from said flow channel such that at least one cooling passage is defined between said flow channel and said cowl, said at least one cooling passage is coupled in flow communication with said cowl at least one opening.

19. A gas turbine engine in accordance with Claim 16 wherein said engine exhaust nozzle discharge aperture induces mixing between exhaust gases and ambient air to facilitate reducing an operating temperature of exhaust gases flowing through said exhaust assembly.

20. A gas turbine engine in accordance with Claim 16 wherein said flow channel comprises an inner surface, an outer surface, and a plurality of openings extending therebetween, said openings for channeling ambient cooling air therein to facilitate reducing an operating temperature of said flow channel.